



Green Roofs - growing plants on rooftops, thus replacing the vegetated footprint that was destroyed when the building was constructed.

Evaluating Green Roofs

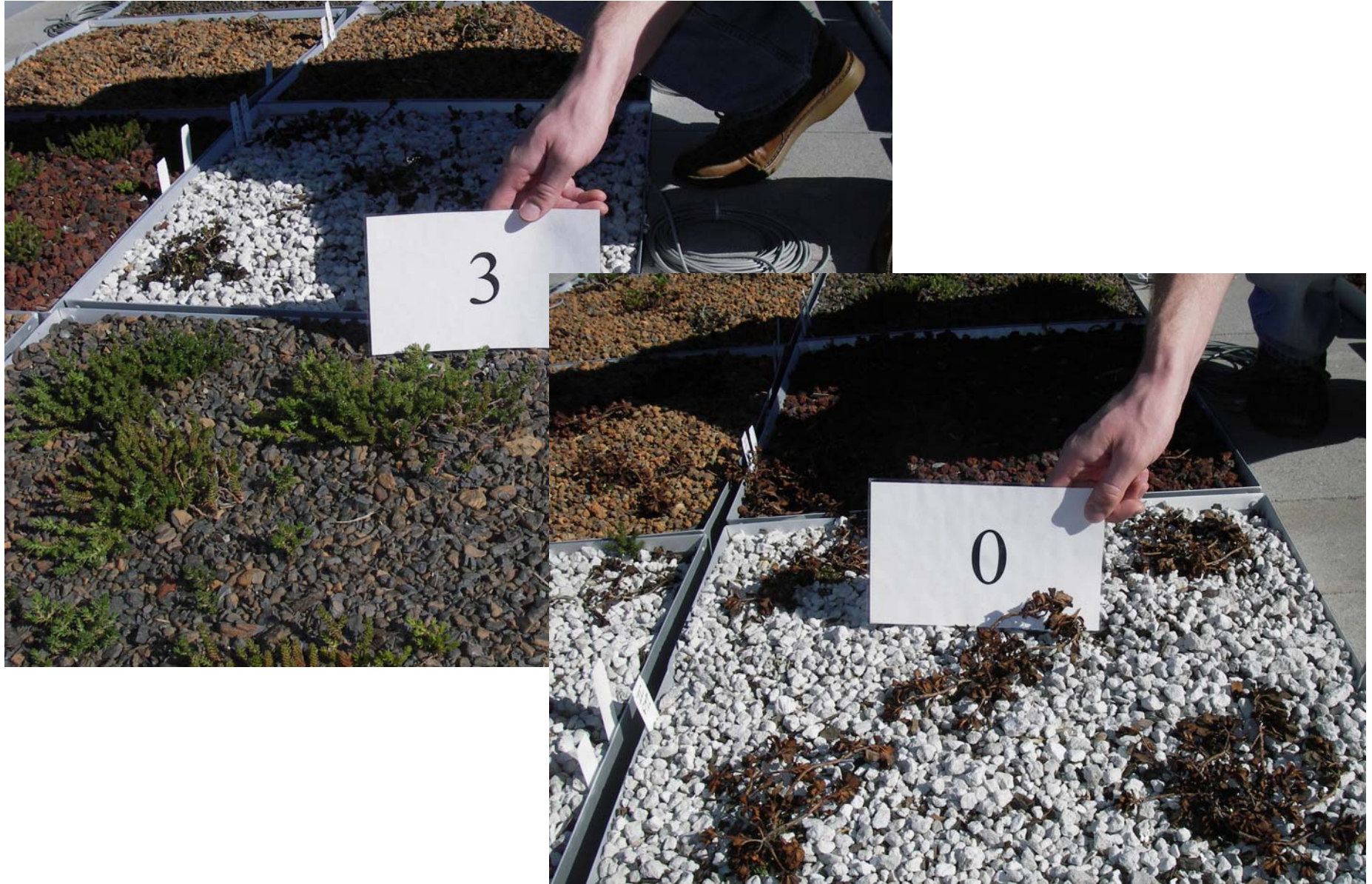


- ***Storm water***
- ***Heat Island***
- ***Life Span***
- ***Thermal Benefit***

Species Survival



Species Survival



Carnegie Mellon University



Carnegie Mellon University



G.R.E.E.N. (Green Roof Environmental Evaluation Network)



www.green-siue.com

www.greenroofs.com

Members of ***G.R.E.E.N.*** include:

Dr. Bill Retzlaff – SIUE Environmental Sciences Program (Coordinator)

Dr. Susan Morgan – SIUE Civil Engineering

Dr. Terry Yan – SIUE Mechanical and Industrial Engineering

Mr. Kelly Luckett – Green Roof Blocks™, St. Louis Metalworks Co.

Mr. Vic Jost – Jost Greenhouses

Ms. Grace Koehler – Midwest Groundcovers

Mr. Michael Curry – Midwest Trading Horticultural Supplies, Inc.

Ms. Janet Faust – JDR Enterprises, Inc.

Ms. Linda Velazquez – greenroofs.com

Mr. Ed Snodgrass – Emory Knoll Farms

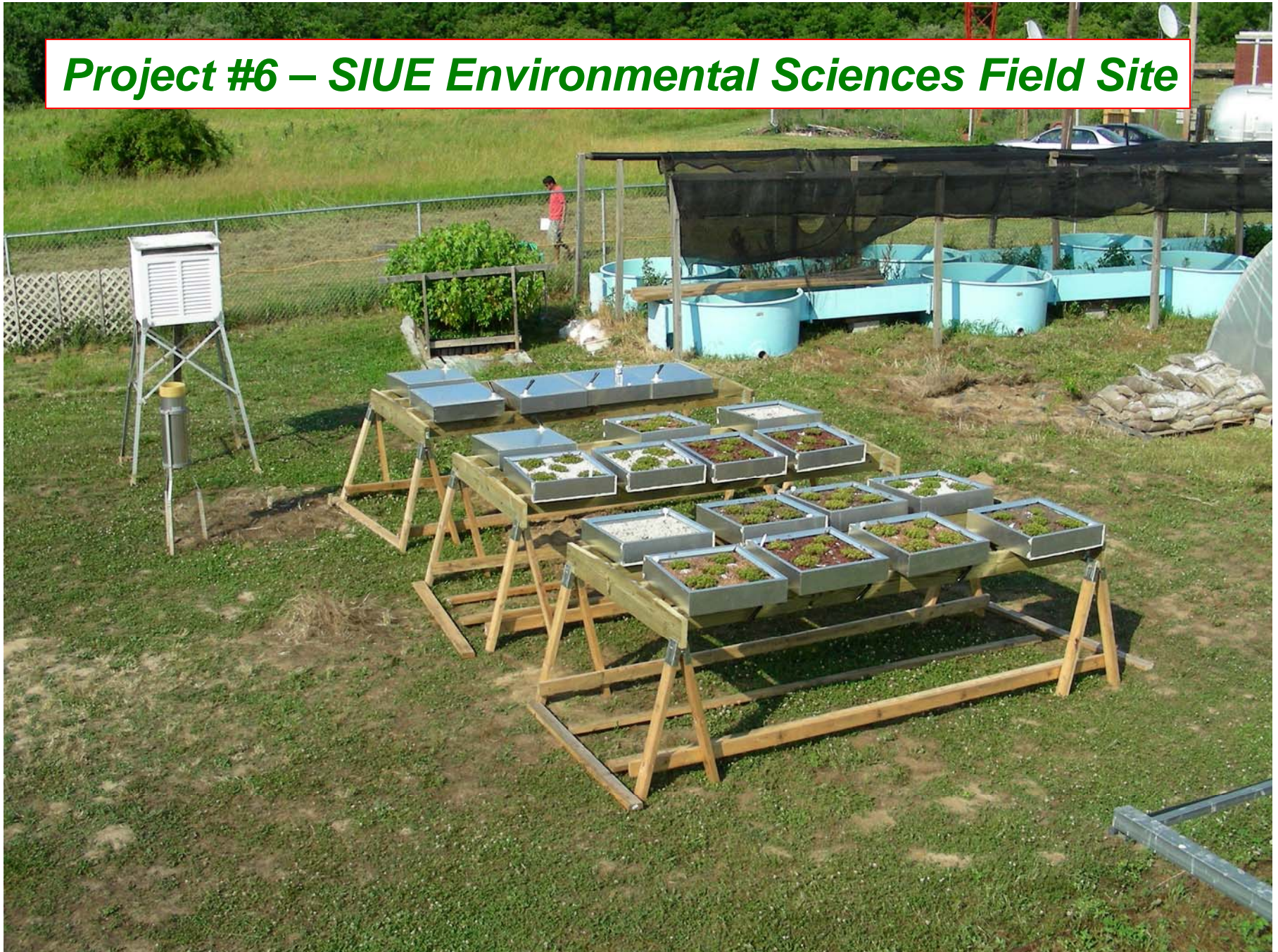


G.R.E.E.N. Research Efforts

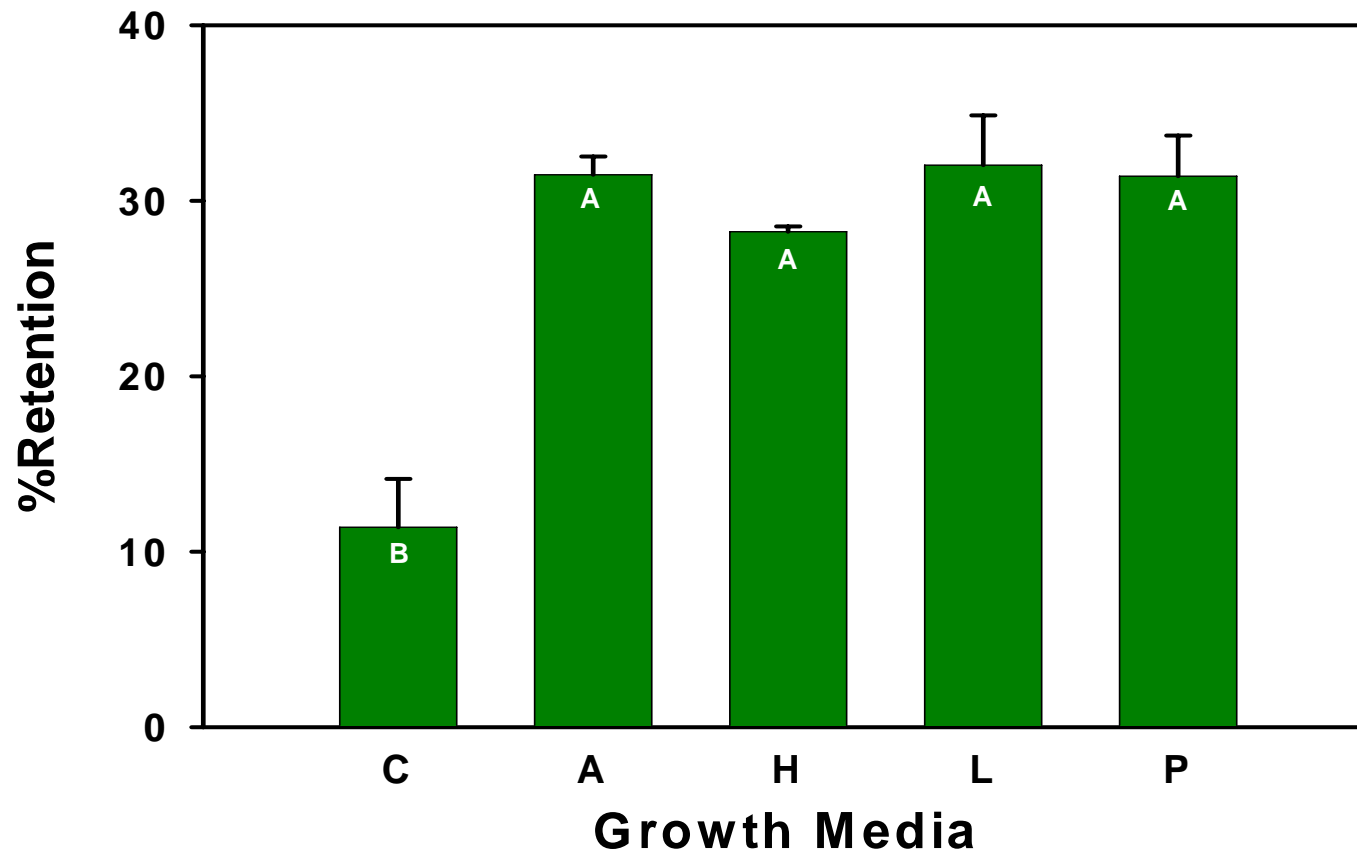


- ***Storm water runoff***
 - ***Quantity***
 - ***Quality***
- ***Green roof plant and growth medium evaluation***
- ***Roof coverage***
- ***Thermal benefits***

Project #6 – SIUE Environmental Sciences Field Site

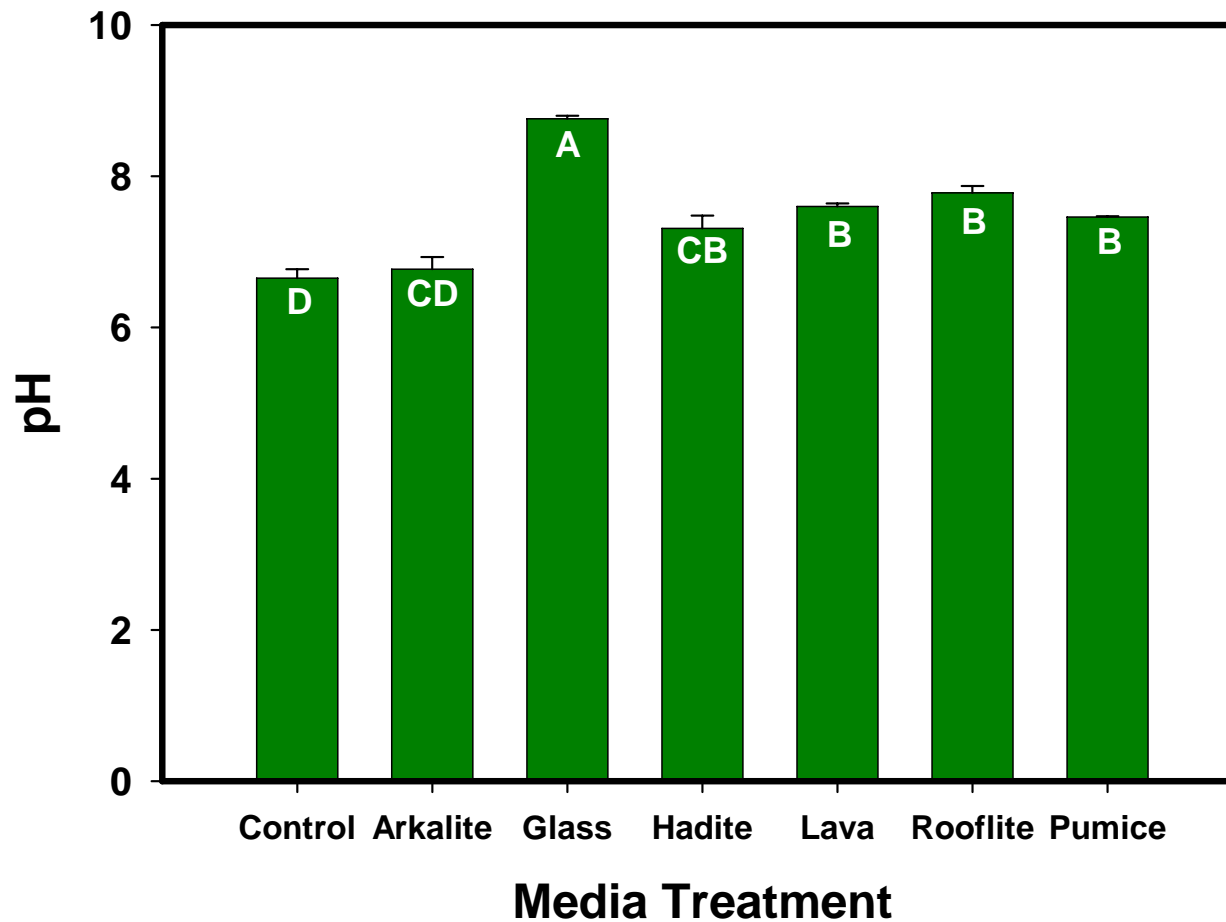




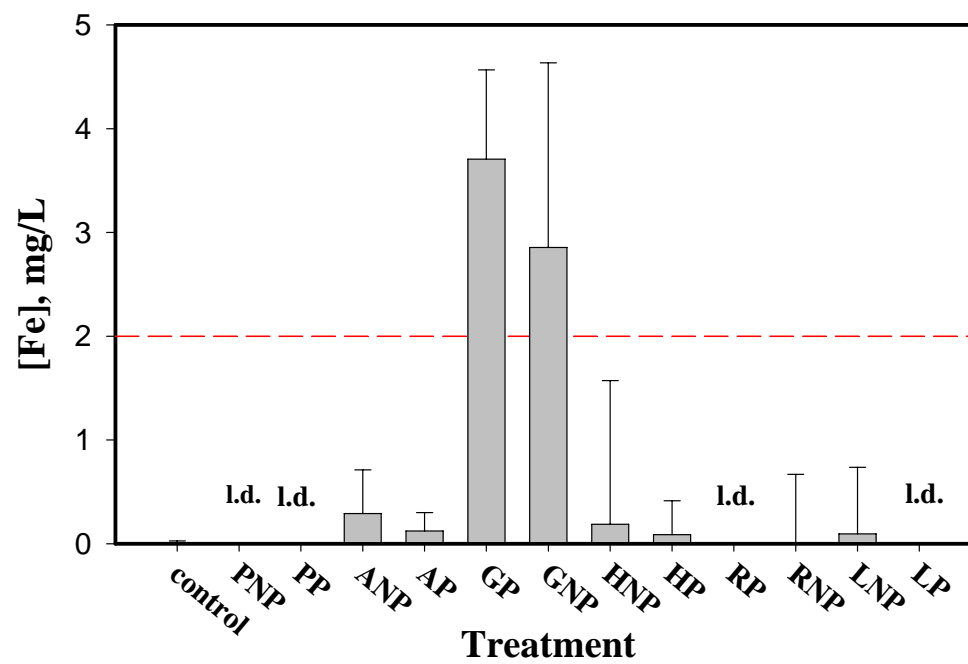
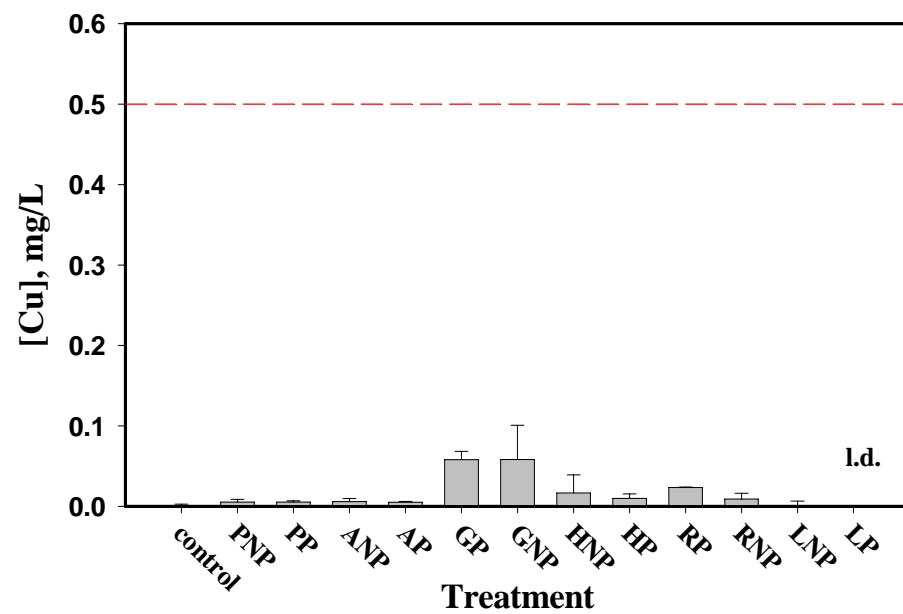


Storm water retention (%) of four planted growth mediums and control roofs for 24 weeks beginning August 8, 2006. Bars with different letters are significantly different ($\alpha < 0.05$). Error bars represent +1se. (n=3)

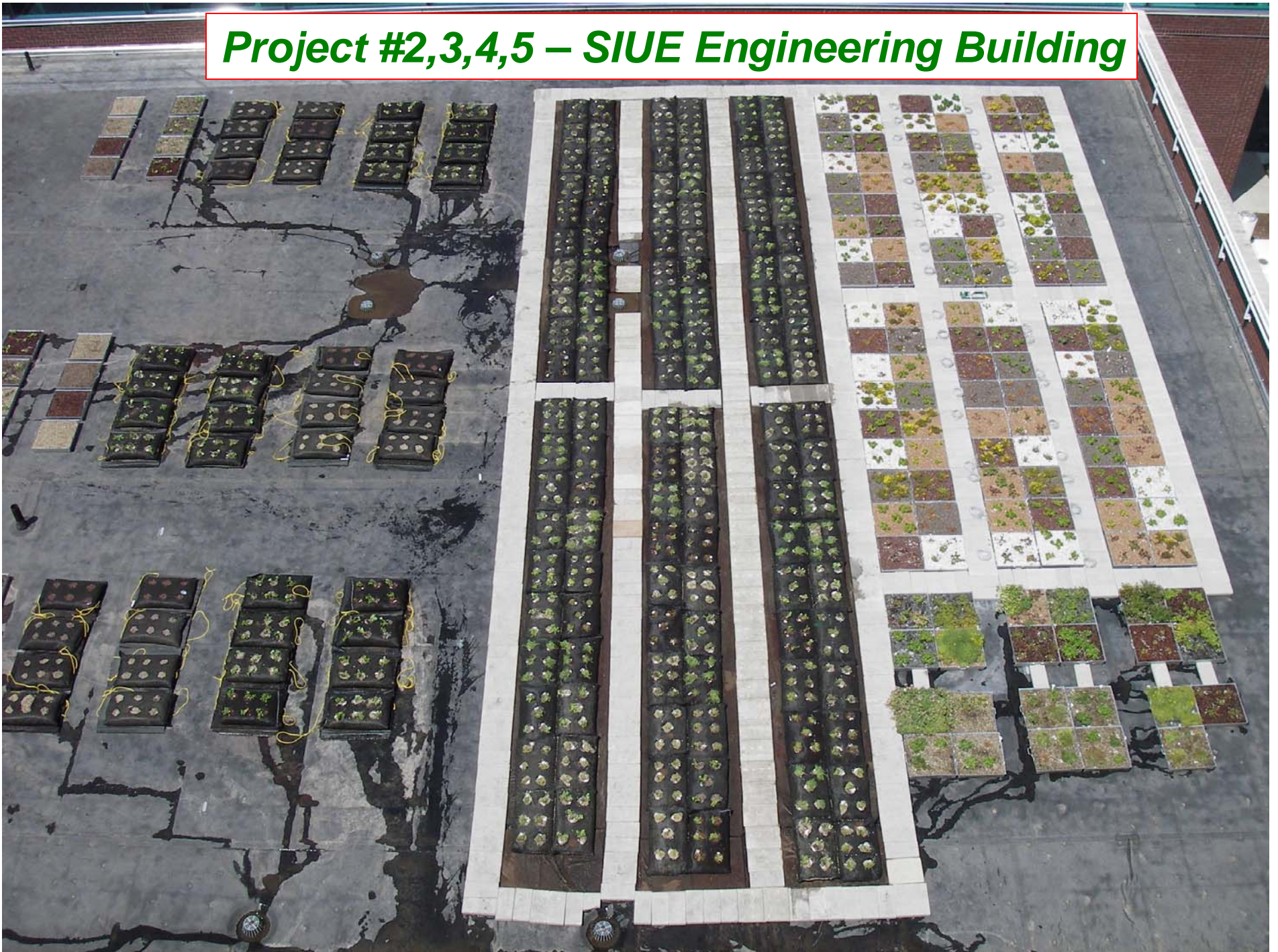




Mean pH levels for July 2, 2007 of 6 different media in planted 10 cm Green Roof Blocks™. Bars with same letter are not significantly different, $p < 0.05$. Error bars + 1 SE.



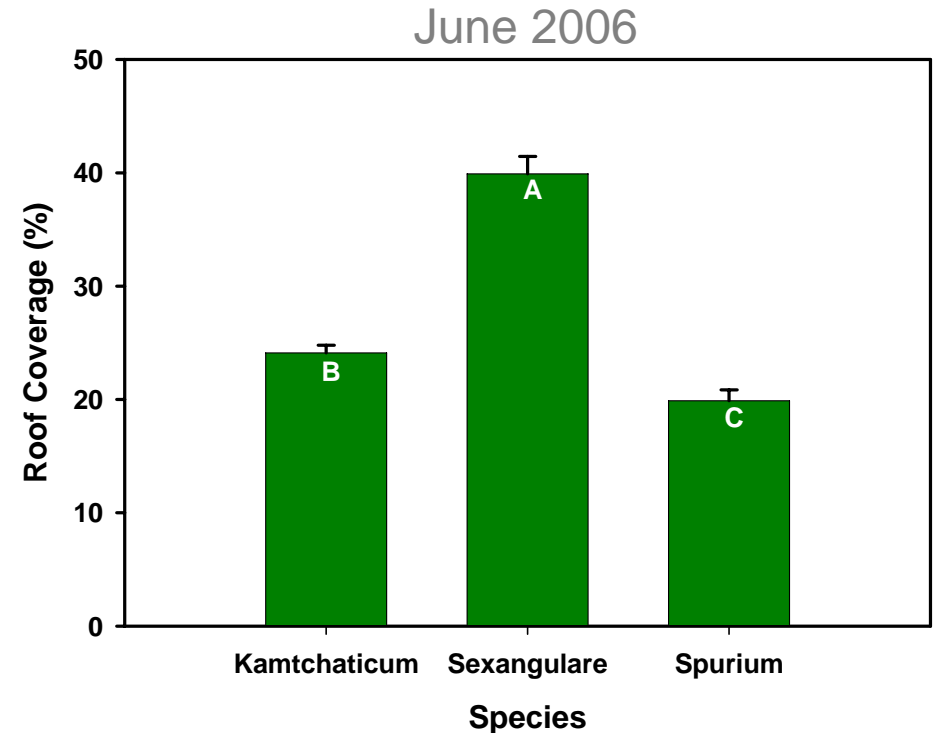
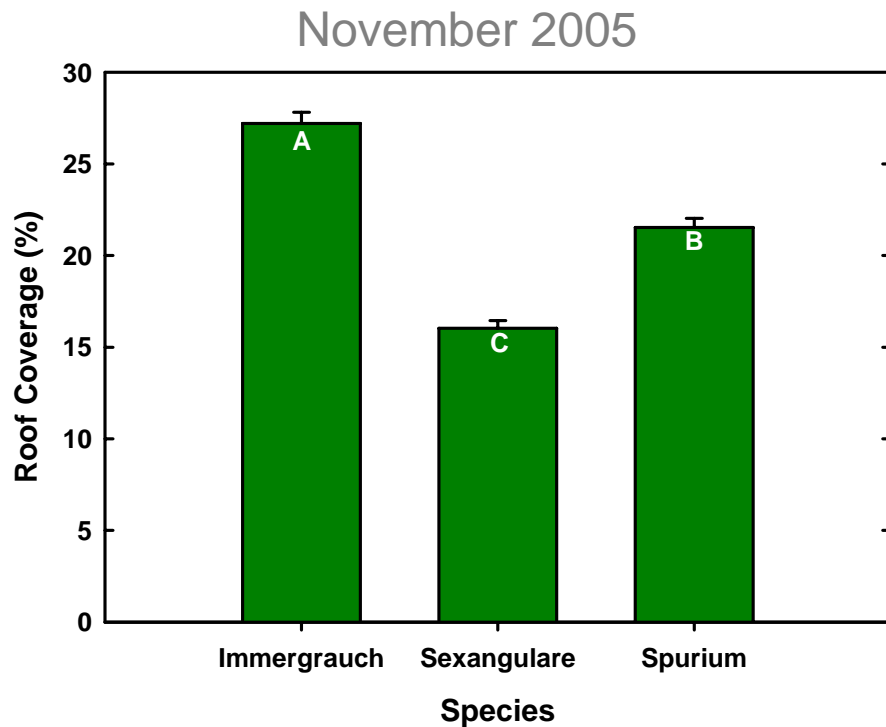
Project #2,3,4,5 – SIUE Engineering Building







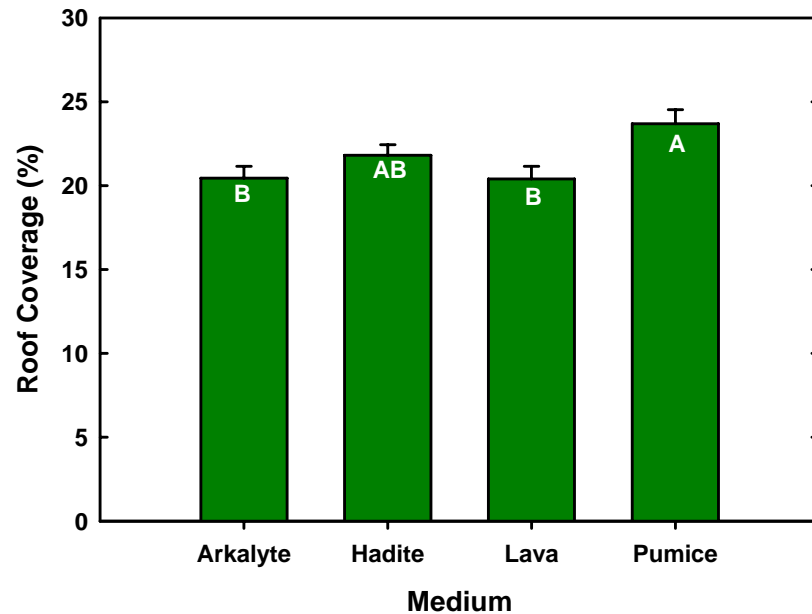
Plant Species



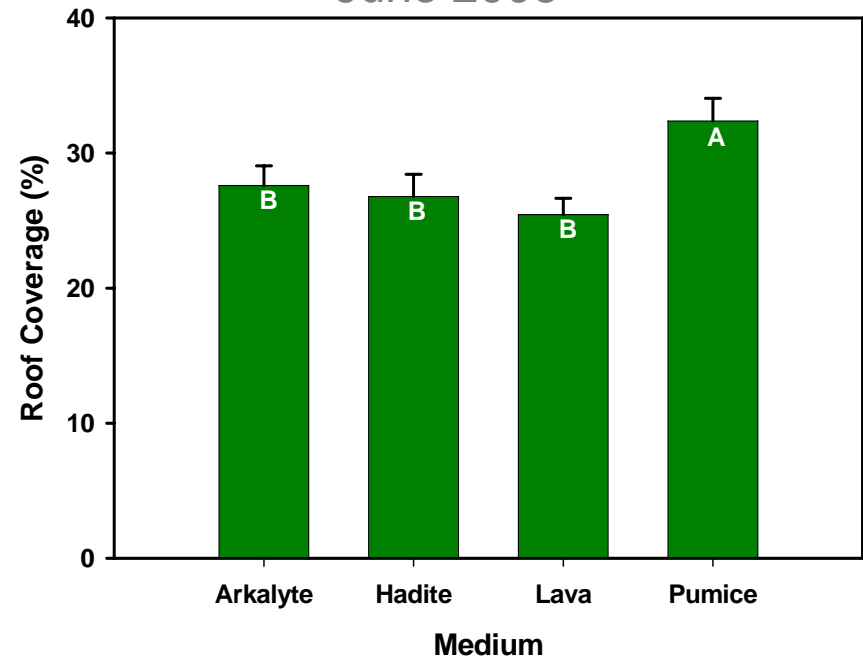
Treatments with the same grouping letter are NOT statistically different, $\alpha=0.05$

Growing Medium

November 2005



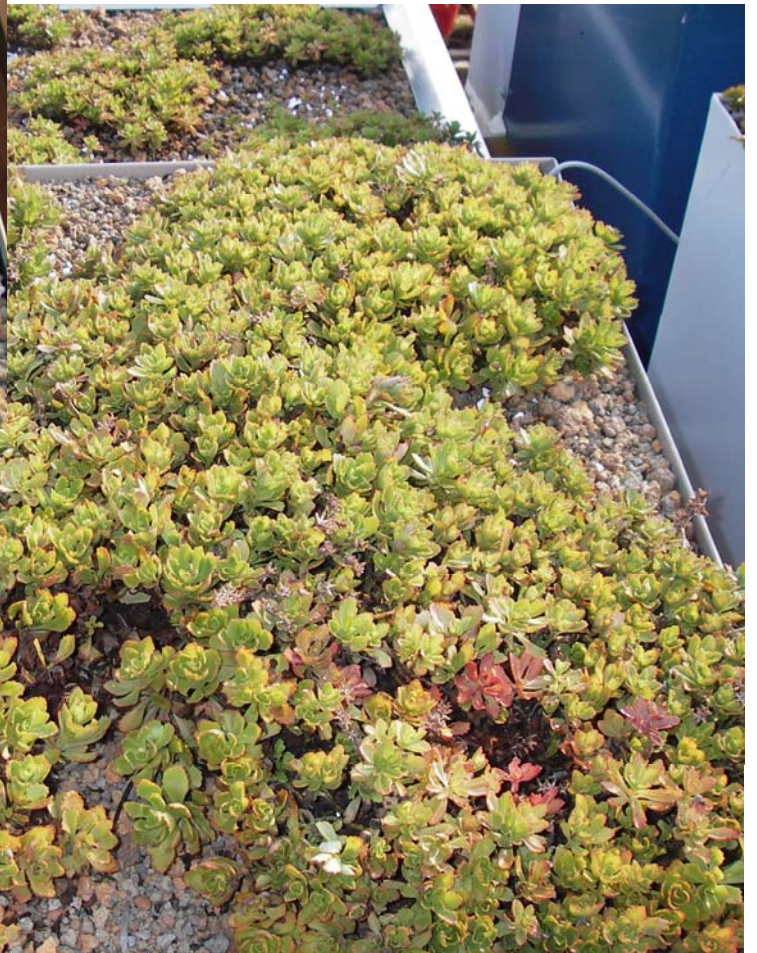
June 2006



Treatments with the same grouping letter are NOT statistically different, $\alpha=0.05$







Green Roof Recommendations

- ***Sedum spurium 'John Creech'***
- ***Sedum sexangulare***
- ***Sedum hybridum 'Immergrunchen'***
- ***Aggregate media – 80% inorganic:20% organic***
- ***Lava, Pumice, Haydite, Arkalyte***

G.R.E.E.N. Research Goals



- ***GREEN ROOF PRESCRIPTIONS***
- ***NEW TECHNOLOGIES***
- ***EVALUATE PROBLEMS***
- ***RESEARCH INFORMATION PORTAL***
- ***ENERGY CONSERVATION***
- ***RECYCLABLE MATERIALS***



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Donations to G.R.E.E.N. Fund Additional Student Research